

Africa RISING Project Mapping and Monitoring Tool (PMMT)

User Guide

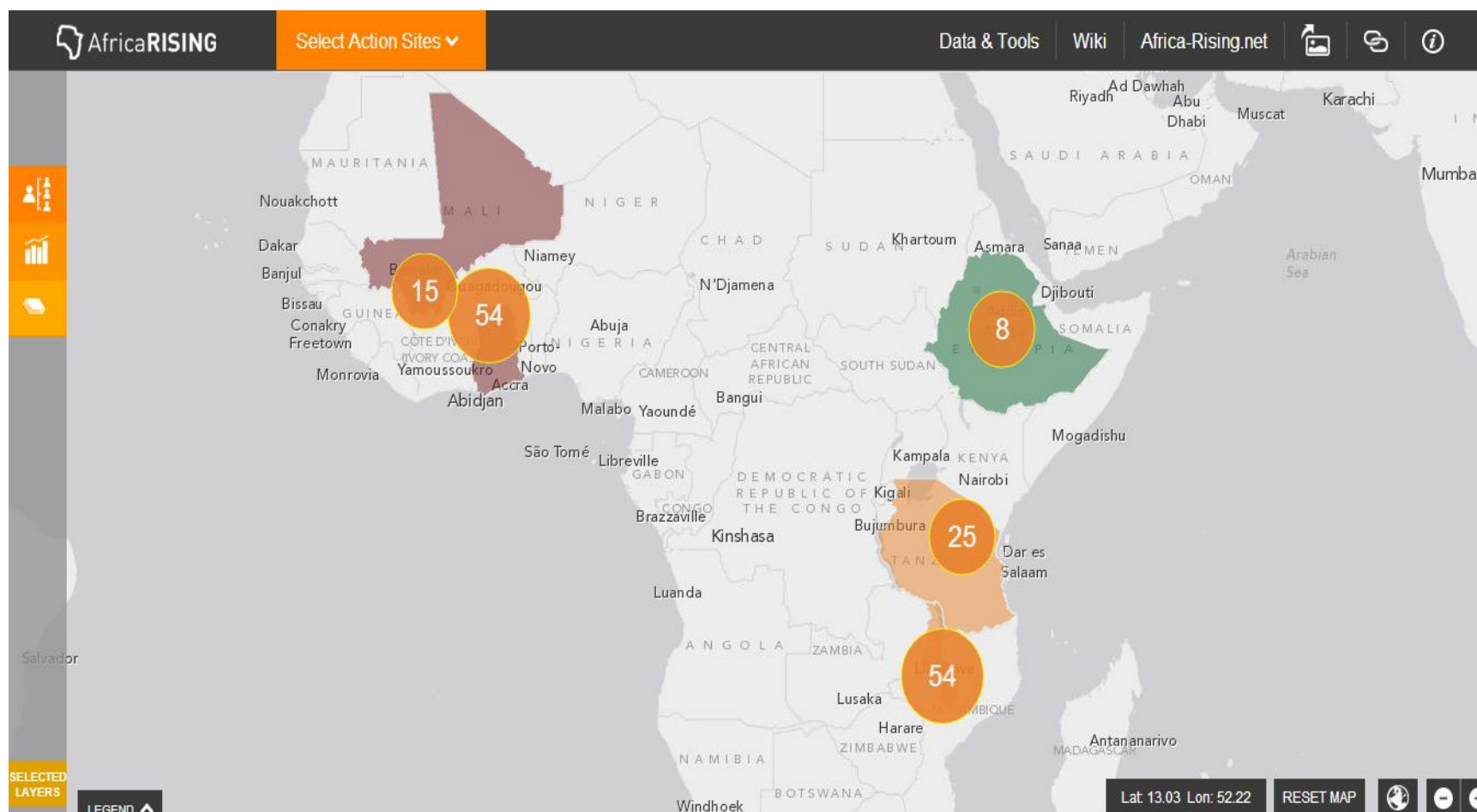


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I. The Africa RISING Project Mapping and Monitoring Tool

1. Introduction to the Africa RISING Project

Sustainable intensification of mixed crop livestock systems is a key pathway towards better food security, improved livelihoods, and a healthy environment. As part of the U.S. Government's *Feed the Future* initiative to address hunger and food security issues in sub-Saharan Africa, the U.S. Agency for International Development (USAID) is supporting the Africa Research in Sustainable Intensification for the Next Generation (Africa RISING) program.

Africa RISING (AR) is comprised of three research-for-development projects which, through action research and development partnerships, will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three regional projects are led by the International Institute of Tropical Agriculture (IITA) in West Africa and East and Southern Africa and the International Livestock Research Institute (ILRI) in the Ethiopian Highlands. The International Food Policy Research Institute (IFPRI) leads the program's monitoring and evaluation project.

The overall aim is to transform agricultural systems through sustainable intensification projects in three regions of Africa:

- Sustainable Intensification of Cereal-based Farming Systems in the Guinea-Savannah Zone of West Africa – led by IITA
- Sustainable intensification of crop-livestock systems to improve food security and farm income diversification in the Ethiopian highlands – led by ILRI
- Sustainable intensification of maize-legume-livestock integrated farming systems in Eastern and Southern Africa – led by IITA

These regions were chosen based on analysis of cropping systems, poverty, population, country development priorities, and the potential for successfully improving agricultural productivity. They will also contribute to the CGIAR's integrated 'systems' research programs on drylands and on the humid tropics.

Africa RISING identifies approaches that will ultimately deliver against its purpose of providing pathways out of hunger and poverty through sustainable intensification (SI). These approaches are not designed to be entirely prescriptive, allowing individual research teams to build on their past experience and to exercise their creativity in developing workable solutions to farmers' problems. Key features of the program are:

- The research conducted will be designed to test a set of hypotheses that are carefully linked to outputs and associated developmental outcomes identified by the Africa RISING program.
- Its research activities will be problem-focused and driven by changes in market demand, evolving policy environments (e.g. food security and environmental mitigation) and changing social structures (resulting from migration / urbanization etc.). It will also meet the needs of farmers. These activities will support the integration of SI-related innovations from a wide range of sources (past research, ongoing adaptive research, and indigenous solutions) into the farming systems that are targeted.
- It is built on a set of guiding principles that will help to ensure that its research outputs are targeted effectively on development needs and are feasible for target farm households to implement. These principles include an appreciation of household diversity, differing and multiple objectives, complementarity of interventions / innovations and the dynamic nature of intensification at the household level.
- It is implemented at several levels with core research outputs that are likely to be common across the program; research activities that may or not be relevant to all of the research questions posed by the individual projects; methods and tools that can be applied flexibly as dictated by these individual research activities and the context in which they are to be carried out.
- Scaling will be embedded in the program, at a pilot level (within the program's budget) and beyond through the development of investment plans with development agencies. Some of these opportunities are already emerging through initial discussions with other partners and donors.

This research approach has been designed to be effective in addressing the continuum from problem identification and targeting through to scaling, with clear objectives and outputs that are built on testable and refutable hypotheses.

The complete program framework for the Africa RISING project can be found here:

<https://cgspace.cgiar.org/bitstream/handle/10568/25079/ProgFramework2012.pdf?sequence=9>

2. The Africa RISING Project Mapping and Monitoring Tool

The Africa RISING Project Mapping and Monitoring Tool (PMMT) is ultimately intended to help users understand where and how Africa RISING activities are taking place, and improve project strategies and partnerships for greater impact in their work. Its features and functions have been designed to provide the following benefits:

- **Inform strategic and project management decisions.** The PMMT can help inform decisions by allowing users to take geographic information about AR sites into account, whether it is the location of markets, related projects and partners, travel time, annual precipitation, or maize crop yields.
- **Communicate programmatic projects to key stakeholders.** A primary benefit to users of the PMMT is to see the spatial layout of AR activities relative to geographic context. Users have the ability to add their projects to the PMMT database and then visualize those projects in a variety of ways.
- **Understand how programmatic efforts relate to other projects as well as to useful agricultural information. Users have the ability to browse and map other people's projects alone and alongside their own projects.** This functionality provides the framework for multiple organizations to communicate vital strategic information together in a coordinated fashion.

The Africa Rising PMMT is composed of two functional modules which perform specific and complementary functions:

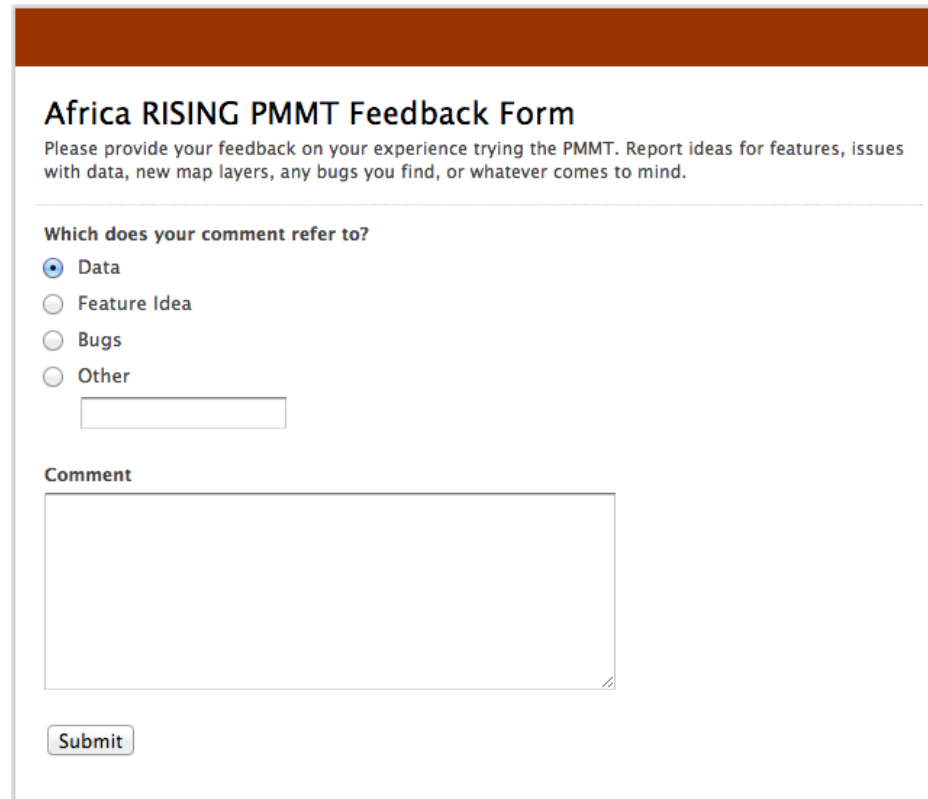
- **Mapping Application** – This allows users to contextualize where AR activities are taking place and view data related to them
- **Data Entry Application** – Users with the appropriate credentials can add additional data to the PMMT through an intuitive, step-by-step interface

The African Rising PMMT has three types of users, each with different use cases and use privileges. A single user can fill these roles for different action sites:

- **Viewer** – A viewer has the opportunity to browse information about AR sites. Where data is available, they can generate reports based on statistics that exist in the PMMT.
- **Editor** – An editor has all the rights that a viewer does. In addition, an editor can make changes to values in reports that exist in the PMMT.
- **Administrator** – In addition to all the rights that an editor has, an administrator can create new reports and add or change other users' access rights.

2.1 Help Resources

The User Guide is one of several help resources available with PMMT. From anywhere in the system, you can access the tutorial via the **Help** menu in the upper right hand of each page. There is also a **Feedback** link located in the Help menu. This will allow you to comment on or ask questions related to PMMT data, suggest features, and inform the Development Team of bugs. **A link to this User's Guide will be located under the Help menu in the upper right of the application.**



The screenshot shows a web form titled "Africa RISING PMMT Feedback Form". Below the title is a brief instruction: "Please provide your feedback on your experience trying the PMMT. Report ideas for features, issues with data, new map layers, any bugs you find, or whatever comes to mind." The form contains a section titled "Which does your comment refer to?" with four radio button options: "Data" (selected), "Feature Idea", "Bugs", and "Other". Below the "Other" option is a small text input field. Further down is a large text area labeled "Comment". At the bottom left of the form is a "Submit" button.

Africa RISING PMMT Feedback Form

Please provide your feedback on your experience trying the PMMT. Report ideas for features, issues with data, new map layers, any bugs you find, or whatever comes to mind.

Which does your comment refer to?

☒ Data

☐ Feature Idea

☐ Bugs

☐ Other

Comment

2.2 Features and Capabilities

The Africa RISING PMMT enables users to find action sites, make maps, and enter new project reporting data. Each of these primary features is described in greater detail in corresponding sections of this User Guide.

- **Explore Projects.** Users have the ability to browse and filter projects spatially on both an interactive map and on a static summary map, as well as in a tabular list view.
 - **Filter by:** Region, Country, District, Partner, and Target Technology.
 - **Navigate by:** Panning and zooming the map.
- **View Context.** Users have the ability to add many different layers to the map view.
 - **Map Overlays:** Contextual layers (e.g. population, crop production) layers.
 - **Site Locations and Related Content:** Contacts, ancillary datasets, project information.
 - **Reference Layers:** Change basemaps, add region and/or district administrative boundaries
- **Enter Monitoring Data:** Users can update indicator measures online.
 - **Feed the Future Indicators:** Update the programmatic indicators for action sites on a semester basis.
 - **Custom Indicators:** Create indicators and measures that are specific to an action site or project.
- **Export Data.** Users can export maps and data to work with offline.
 - **Map Application:** Export a map image with a legend.
 - **Data Entry/Reporting Module:** Export an image of a report covering all years and indicators. Export a csv file containing data for all years and indicators.

3. Gaining Access to Africa RISING PMMT

The web address for Africa RISING PMMT is <http://apps.harvestchoice.org/africarising/>

Access to the data entry and reporting features of the PMMT is restricted. If you would like to request access, please do so via the e-mail link on the login page. Access is granted at the discretion of the M&E Coordinators and Project Leadership.

3.1 System Requirements

The PMMT should be accessible using any computer with a web browser and connected to the Internet. Minimum screen resolution is 1024 pixels by 768 pixels. The application is compatible with Chrome, Firefox, Safari, and Internet Explorer Version 10 and newer.

Links for downloading these browsers are provided below:

Chrome - <https://www.google.com/intl/en/chrome/browser/>

Firefox - <http://www.mozilla.org/en-US/firefox/new/>

Safari - <http://support.apple.com/downloads/#safari>

Internet Explorer - <http://www.microsoft.com/en-us/download/internet-explorer-10-details.aspx>

II. Basic Concepts and Definitions

1. Sites

To properly assess the impacts of the AR program, it was necessary to delineate the geographical areas within which there are large numbers of potential beneficiaries as well as significant opportunities for the welfare of those beneficiaries to be enhanced through AR interventions that implementation partners (CG centers, NGOs, local institutions) have delivered and plan to deliver. The PMMT provides a visual representation of both the sites where the project took place (“action sites”) and similar but separate sites (“control sites”).

The PMMT contains two primary data types: project data and contextual reference data. These can be used together to create informative interactive maps of various AR sites.

1.1 Action Sites

Since its outset, the Africa RISING program has purposely adopted a highly-structured approach to geographic targeting and the selection of action research sites. This structured approach will greatly facilitate the extrapolation of findings from action research sites, and hence the spillover of knowledge and technologies, across the entire West Africa Guinea-Savannah zone, the Ethiopian Highlands, and the maize-based systems of East and Southern Africa.

Behind the AR PMMT is a database designed to store detailed project information. Each research location has an associated set of information on its biophysical, farming, market, and socio-economic factors that can be interpreted in a broader regional context. In addition, project information describes which activities are taking place and where. PMMT contains information about Africa RISING projects, other projects, and external layers, so connections can be made on the ground.

Project Data is made up of specific projects, their actions, and the locations where these actions occur. Users can access basic attributes such as the name, description, and duration of each project. Within each project are activities, which have basic attributes similar to those of the project but specific to each action site. Locations illustrate where research activities are taking place which includes **on farm demonstrations and training**. Locations are represented as points or areas (polygons). These are drawn by the designated user or users, uploaded in batches (points only) or taken from the PMMT database of known places and administrative district boundaries. Contact and partner information are also stored as part of the project data.

The PMMT contains a Map Overlays library which helps users put project data into context. The library consists of contextual reference data from others involved in global development (CGIAR, FAO). The content spans a wide variety of topics including

demographics, crop suitability, and market characteristics. Additional layers and categories of data are planned based on availability and user feedback. Specific requests for overlay reference data can be made to the IFPRI Team through the Feedback Form.

1.2 Control Sites

In addition to areas where AR activities are taking place, the PMMT provides a visual reference for areas similar to AR action sites. These “control” sites are areas taken as valid counterfactuals for assessing the relative impact of Africa RISING. The control villages were chosen within areas showing characteristics as similar to action sites as possible. Moreover, the control sites were chosen to be physically or in some other way isolated from the action sites. In some areas, which are internally homogeneous, **it was possible to find control sites that were both similar to action sites and physically separate from them**, whereas in others – with greater variations in topography, climate and access – this proved to be a very difficult task, so it was decided to randomly select sites from the adjacent areas. Site selection reports are available for interested users.

2. Indicators, Categories and Measure

As a project funded by Feed the Future (FTF) initiative, Africa RISING must and will report regularly on its progress using FTF indicators. The FTF Indicator Handbook specifies these indicators in detail, including requirements for their disaggregation.

2.1 Indicators

The indicators can be organized into a standard USAID Results Framework (RF), showing the FTF Intermediate Results (IRs) and sub-Intermediate Results (sub-IRs) that these indicators track (see chart below) Indicators may include crop yields by farm, usage of improved variety seeds, etc.

2.2 Categories

Disaggregation of these indicators by category – such as development domain, farm household typology, etc. – can illustrate differential effects of AR across groups of interest. Such additional disaggregation will also help to provide the granularity of data required to achieve program and project level (e.g., West Africa, Ethiopia, East and Southern Africa) goals and accountability that go beyond the needs of high-level FTF reporting. The complexity of the program and the expected diversity in the three projects will also call for the development of a number of “custom” indicators to provide a complete picture of outcomes and impacts and, hence, provide more complete progress reporting. These custom indicators will not be aggregated across FTF projects (and the FTF monitoring system does not record custom indicators in its central database), but they are needed to satisfy other internal USAID and CRP monitoring of Africa RISING’s progress. Data on custom indicators will also provide critical information on, for example, the program’s country-specific and mega-site intervention outcomes.

FTF Goal: Sustainably Reduce Global Poverty and Hunger

FTF First Level Objective: Inclusive agriculture sector growth

FTF First Level Objective: Improved nutritional status (women & children)*

IR 1: Improved agricultural productivity

Outcome Indicators:
#10 Gross margin per hectare (whole farm and by system component)
#11 Number of hectares under improved technologies or management practices

IR 2: Expanding Markets and Trade

Outcome Indicator:
#14 Value of incremental sales
Custom Outcome Indicator:
#15 Farmer satisfaction with quantity, quality and timeliness of extension and input supply services (Sub-IR 2.3: Improved Market Efficiency)

IR 4: Increased employment opportunities in targeted value chains

Outcome Indicator:
Increase in diversification of off-farm income opportunities for households

IR 5: Increased resilience vulnerable commodities and households

Output Indicator:
#17 No. of vulnerable households benefiting directly from USG interventions

IR 6: Improved access to diverse and quality foods

IR 7: Improved nutrition-related behaviours

*This FTF First Level Objective has been included only for completeness, as AR is not intended to address it directly.

Sub-IR 1.1: Enhanced Human and Institutional Capacity Development for Increased Agriculture Sector Productivity

Outcome Indicators:

- #5 Farmers who applied new technologies or management practices
- #6 Private enterprises/organizations that applied new management practices
- #12 Stakeholders implementing risk-reducing practices/actions to improve resilience to climate change

Output Indicators:

- #1 Individuals who received long-term training
- #2 Individuals who received short-term training
- #3 Private enterprises/ organizations receiving assistance
- #4 Producer/community based reorganizations receiving assistance

Sub-IR 1.2: Enhanced Technology Development, Dissemination, Management, and Innovation

Output Indicators:

- #7 No. of new technologies or management practices: 1) Under research, 2) Under field testing, or 3) Made available for transfer
- #13 No. of rural households benefiting directly from USG interventions

Source: Volume 1 FTF M&E Guidance Series
([ftf_volume1_monitoringevaluation_feb2012\[1\].pdf](#))
Note: IR 3 (Increase investment in agriculture and nutrition-related activities) and IR 8 (Improved use of maternal and child health and nutrition services) have been omitted from the FTF original version.

USAID-provided IRs and Indicators
Additional suggested Indicators

2.3 Measure

Measures are simply the units used to demonstrate to what extent indicators have been affected by Africa RISING.

III. Getting Started with the Mapping Application

In this section, you will find an explanation of the features of the PMMT mapping application as well instructions on how to accomplish basic workflows using them. The instructions are intended to get you started as a user and are not exhaustive in terms of what the PMMT can do.

3. Mapping Application Features

Users will primarily interact with the Africa RISING Portfolio Mapping Tool through features that are directly accessible from the landing page. These functions are illustrated on Figure 1.: (1) **Map**, (2) **Header Toolbar**, (3) **Data Toolbar**, (4) **Map Tools**, (5) **Site Clusters**, (6) **Site Info Box**. Uses of these functions are outlined later in this section.

3.1 The Map

Africa RISING research activities are displayed as orange numbered circles on the basemap and the regions where the research activities occur are highlighted. The number in orange circle represents the number of communities¹ in a given area. As the user zooms in on the map, the clustered communities disaggregate, bringing the community circles closer to their real-world location. Clusters will continue to be disaggregated until they accurately represent the full range of villages where research activities take place.

The five orange numbered circles on the map represent both Africa RISING **Action** and **Control** communities. Clicking on an orange circle at any zoom level opens the **Site Info Box** in the



¹ Please note that the definition of a community varies across countries depending on the local administrative and geographical arrangements. Village and community are used interchangeably in this User Guide.

upper right-hand corner of the browser window. This window

contains information such as location, community type (control versus action) and contact information for the M&E coordinator of the mega-site. The header of the dialogue box shows the name of the village in the selected site, as well as the total number of villages in the selected cluster. Villages can be scrolled through by clicking the forward and backward arrows, also located in the window header. Specific sites can be zoomed in on by selecting **Zoom To** in the dialogue box. Clicking on **More Detail** activates the **Research Activities** and **Data Reports** tabs, which will become available at the bottom of the page.

3.2 Research Activities and Data Reports

AR conducts sustainable intensification in three major areas of Africa:

- Sustainable Intensification of Cereal-based Farming Systems in the Guinea Savannah Zone of West Africa – led by IITA
- Sustainable intensification of crop-livestock systems to improve food security and farm income diversification in the Ethiopian highlands – led by ILRI
- Sustainable Intensification of Cereal-based Farming Systems in East and Southern Africa – led by IITA

AR monitoring and evaluation research outputs consist thus far of baseline household and community surveys in Ethiopia, Ghana, Malawi, Mali, and Tanzania.

The **Research Activities** tab (Figure 2.) contains information similar to the **Site Dialogue Box**.

It also has a link (1), which will direct the user to the **Africa Rising Open Data Catalogue** (discussed in detail later in this guide), where the user will be able to access data sets related to the selected site. Clicking on the **Data Reports** Button (2) will open the **Data Reports Module**.



Figure 2. Research Activities

Access to the **Data Reports Module** requires a login. The user will be presented with a **Login Screen** with which to enter a user name and password. These will be provided in advance or can be obtained from your M+E Coordinator.

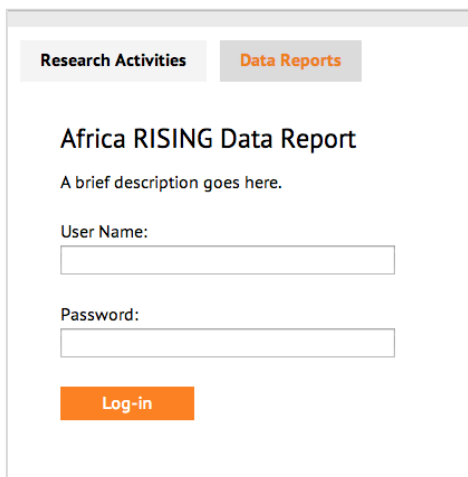
The image shows a web interface for the 'Africa RISING Data Report'. At the top, there are two tabs: 'Research Activities' and 'Data Reports', with the latter being selected and highlighted in orange. Below the tabs, the title 'Africa RISING Data Report' is displayed. Underneath the title is a placeholder text 'A brief description goes here.' followed by two input fields: 'User Name:' and 'Password:'. Below these fields is an orange 'Log-in' button.

Figure 3. Login to Data Reports

The **Data Reports** summary page contains a list of all reports relevant to the selected site, as well as the abilities to create new reports and export report data by selecting **Download CSV File** or **Export Image**. The second option opens a .png file in a new browser window that can then be saved. All **Indicators** (discussed below) will be included with either export option.

Research Activities **Data Reports** Welcome, testeditor! [Log-out](#)

Choose a Data Report

1. Download CSV **2. Export Image**

Choose an existing Data Report from the list below. You can revise, update or delete existing entries. To create an Data Report for a new work package, activity, geographic area, or partner, choose "Create a New Data Report" above.

3. Open Report Link

Report:	Last edited date:	Last edited by:		
Activity 3.2.3. Agricultural water management for in...	2014-06-11T0...	administrator	Download CSV File	Export Image
Report 1	2014-06-11T0...	administrator	Download CSV File	Export Image
WP3: Livestock intensification	2014-06-11T0...	testeditor	Download CSV File	Export Image
Activity 3.3.2. Testing efficiency of scaling-out and d...	2014-06-11T0...	administrator	Download CSV File	Export Image

Figure 4. Data Reports Summary View

The user will be taken to a specific **Data Report** after selecting it from the **Report Column**. Typically, data from multiple **Indicators** are compiled to create a complete data report. However, the user must select an **Indicator** from the dropdown to view it in the web application.

For example, a report entitled "Farm and Field Productivity" could include indicators such as crop diversity, crop-specific yield, and organic fertilizer use. If the user wishes, these indicators can be reported across various categories of farms including those headed by women or within a certain distance of the nearest market.

Selected Site

East and Southern Africa > Tanzania > Kongwa - Chitego

Research Activities

Data Reports

WP4: Nutritional status improvement and diversification

[< Back to Data Report List](#)

Indicator

4.5.2(27)

Number of members of producer organizations and community based organizations receiving USG assistance

	2012					2013				2014				1	
	1st Semester		2nd Semester			1st Semester		2nd Semester		1st Semester		2nd Semester			
Type of Organization															
Measure	Baseline	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	
Disaggregates Not Available	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Producer organization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Non-producer-organization CBO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sex															
Measure	Baseline	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	
Disaggregates Not Available	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

3.3 Header Toolbar

The header toolbar is located at the top of the browser window and contains data display functions, links to related Africa Rising sites, and tools for sharing maps.



3.3.1 Select Action Sites

The Select Action Sites tool allows the user to filter sites by three main criteria: Region, Partner and Target Technology.

Region – The region filter allows the user to investigate Action Sites at the Region, Country, and District levels. Inputs within this section will zoom the user to the lowest geographic level selected. Selections can be made at the **Regional** Level (e.g. Ethiopian Highlands, West Africa, and East and Southern Africa). This can be further refined to an individual **Country** and a specific **District**. When **Go** is selected, the map will be zoomed to the lowest geographic level selected. Note that the District level cannot be selected without first having selected a Country.

Partner – The partner filter allows the user to limit the display of action sites on the map to those undertaken by a specific Africa RISING partner organization. When **Go** is selected, all sites not associated with that partner will be removed from the map.

Target Technology – Selecting the **Target Technology** filter allows the user to limit the display of action sites on the map to those associated with a particular technology. When **Go** is clicked, all sites not associated with the selected technology will be removed from the map.

Figure 5. Action Site Filters

Data & Tools

3.3.2 Data and Tools

Africa Rising PMMT provides a link to the Africa RISING Open Data Catalogue (Figure 6.), located at <http://ardata.harvestchoice.org/>, which is the working space for the program and its constituent projects. It lists events, links to communication resources, reports, deliverables, output and publicly accessible datasets and maps. As the name suggests, this repository is accessible to the public.

For data files that are not yet public, the catalogue can provide links to the repositories where they are held. Once the data have been collected and curated, they will be published in CGIAR data repositories such as <http://data.ilri.org/portal/>, <http://www.ifpri.org/datasets>, <http://thedata.harvard.edu/dvn/dv/IFPR> or <http://www.cgiar.org/resources/open/>, to be decided by the Africa RISING Project Coordination Team, with suggestion and contribution of the Scientific Advisory Committee.

- **Landing Page** – Provides a search function and tabs which will take the user to the various components of the catalogue.
- **Datasets Tab** – Takes the user to the dataset that provides context in the Africa Rising PMMT. Map and list-based filter functions are available to help you find the data you are looking for.
- **Organizations Tab** – Shows the user who is publishing what to the Open Data Catalogue and provides links to published material. Organizations act like publishing departments. This means that datasets can be published by and belong to a department instead of an individual user. Within organizations, admins can assign roles and authorizations for its members, giving individual users the right to publish datasets from that particular organization.
- **Groups Tab** - Groups allow you to group together datasets under a community (for example, Civil Liberty data) or topic (e.g. Transport, Health, Environment) to make it easier for users to browse datasets by theme. Datasets can be part of a group, but do not belong to the group for editing or authorization purposes.

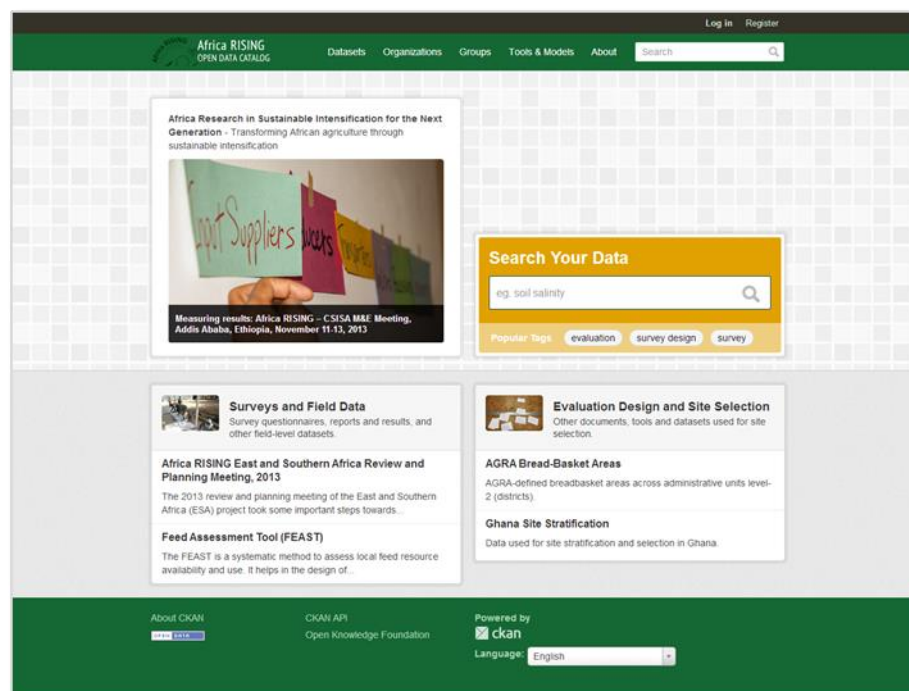


Figure 6. Africa RISING Open Data Catalogue

- **Tools & Models Tab** – Provides a collection of tools, applications and models that are part of the Open Data Catalogue. This collection provides critical support for research into sustainable agricultural intensification. Select the box next to the Funder whose projects you wish to display.

Wiki 3.3.3 Wiki

The Africa Rising Wiki provides a comprehensive list of additions, deletions, and revisions to data contained in the Africa Rising PMT and related sites. It can be accessed wither through the link on the **Header Toolbar** or at <http://africa-rising.wikispaces.com/>.

3.3.4 AfricaRISING.net

This will deliver users directly to the Africa RISING home page.

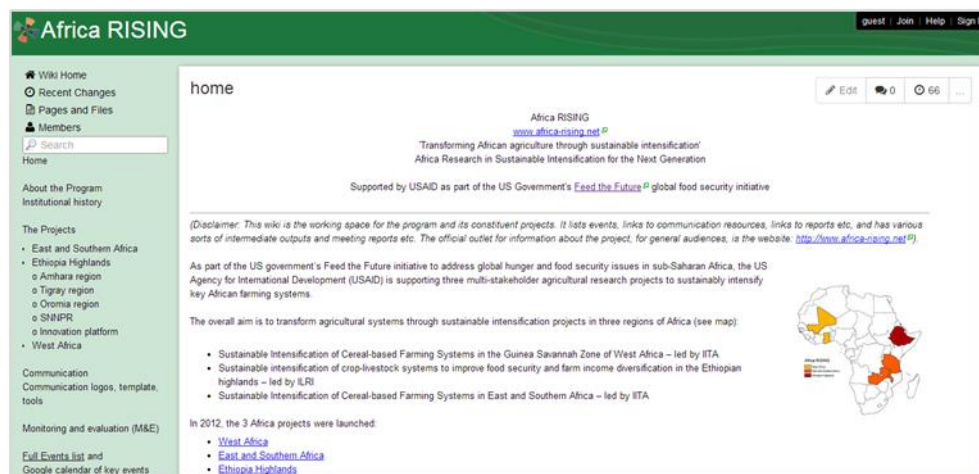


Figure 7. Africa RISING Wiki Page



Figure 8. Africa RISING Program Webpage



3.3.5 Export Map Image

Use can export the visible portion of the map as a jpg, png, or pdf. Note that only the map will be exported; any open tool dialogues (e.g. Site Stratification or Select Layers) will not be reproduced in the exported image.



3.3.6 Share Map

Creates a permalink to your map as it is currently displayed. To use this function, at least one contextual layer must be selected. All tool dialogues except for Selected Layers will be closed in the resulting link.



3.3.7 Information

Selecting the Information icon located at the far right end of the **Header Toolbar** will open the Help menu. From this menu the tutorial video, user guide, and feedback form can be accessed.



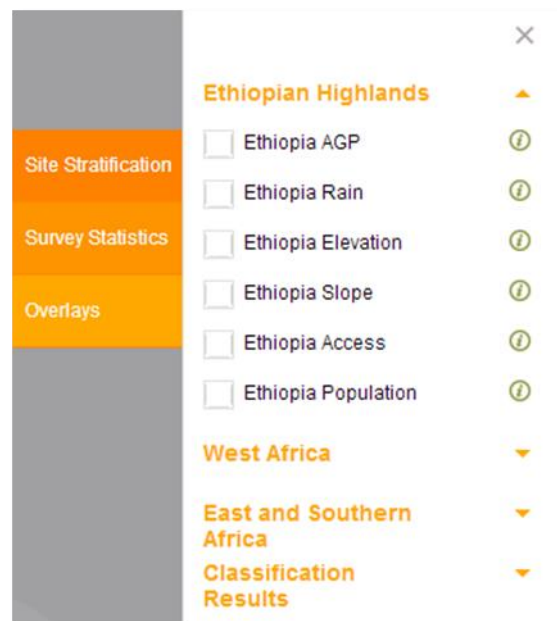
3.4 The Data Toolbar

The Data Toolbar is located along the left margin of the browser window. It contains tools to add, remove, and manipulate data displayed on the map. Clicking on any icon in the toolbar, seen to the left, will expose the tool names and the chosen tools' menu.

3.4.1 Site Stratification

Site Stratification is the first tool on the **Data Toolbar**. It allows the user to select and display numerous datasets available for the PMMT's three specific geographic regions, with data being displayed at the district/woreda level.

There were several steps in the geographical targeting process conducted by the M&E team. The first step involved identification of the three sub-regional geographies that satisfied the criteria of high levels of poverty, high concentration of cereal-based farming systems, and low levels of productivity: the West African Guinea Savannah, Ethiopian Highlands, and maize- and rice-based systems of East and Southern Africa. The second step involved delineating geographical strata (or domains) within those larger areas, where each stratum was hypothesized to represent relatively uniform farming system, SI intervention, and impact pathway conditions or opportunities. The third step involved characterizing each of the strata in terms of the number of potential beneficiaries and other farming system, infrastructure, environmental and welfare-related variables that would help prioritize individual strata from an AR perspective (presuming it might not be practical or feasible to conduct research in all strata). The final step involved random selection of action research and control locations within priority domains.



In order to stratify and characterize the areas, we rely on available spatial biophysical and socio-economic data layers. The column heads in the table below represent examples of data layers used to stratify areas.

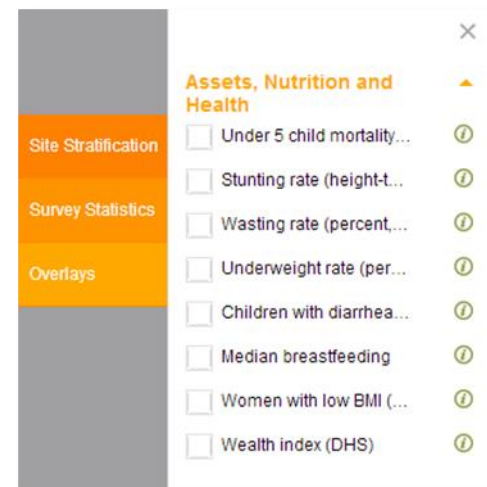
class	pop density	rainfall	elevation	slope	market access	maize harvested area	Temperature
1	1-100	878-900	434-800	0.01-0.5	41-166	1-1082	15.7-19.9
2	101-500	901-1000	801-1000	0.51-1.13	167-283	1083-2180	20-22.1
3	500-2638	1000-1228	1000-2069	1.14-2.53	284-919	2181-4079	22.1-24.4
4				2.54-17.83		4080-6384	

Users can select any number of layers, which can then be manipulated in the **Selected Layers** dialogue, discussed later in this manual. Clicking the **Information** icon next to the layer name will display layer metadata.

Figure 9. Site Stratification Layers

3.4.2 Survey Statistics

This is the second tool on the **Data Toolbar**. AR monitoring and evaluation (M&E) includes similar data collected in household surveys in six countries. These surveys cover household crop and livestock cultivation, access to credit, extension services, shocks, and many other household-level subjects. In addition, they provide information about individual health and nutrition, and employment. Users will be able to select descriptive statistics from these surveys from the data toolbar.

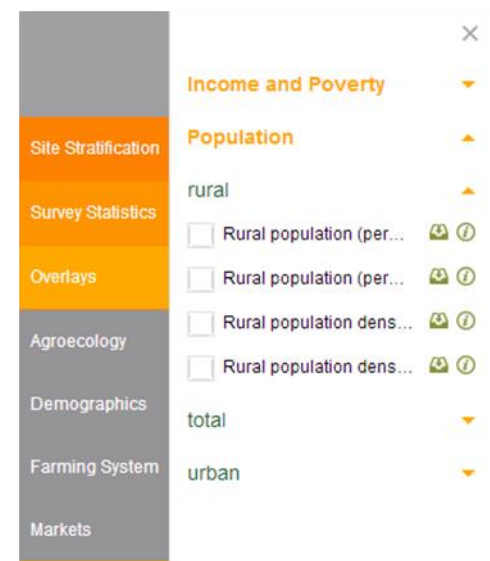


3.4.3 Overlays

The Africa Rising PMMT contains many layers, such as rainfall and elevation, which add context to data selected from the Site Stratification and Survey Statistics menus. Any number of these layers can be added to your map and manipulated using tools in the **Selected Layers** dialogue described below.

This tool is divided into four submenus:

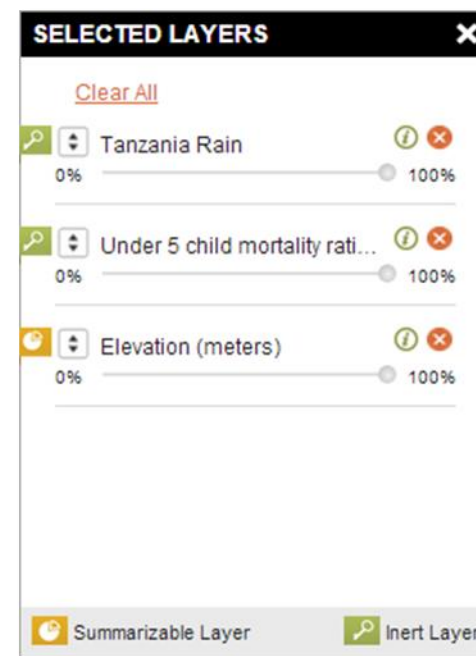
- **Agroecology** – This subsection allows users to add data to their map related to climate, elevation, land cover and use, and soil resources.
- **Demographics** – Shows data related to income, poverty, and population.
- **Farming System** – Layers that show the spatial distribution of various crops and growing methods.
- **Markets** – Layers that show estimated travel time from all locations to towns and cities of varying sizes, as well as major ports.



3.4.4 Selected Layers

This tool is located at the bottom of the **Data Toolbar**. The **Select Layers** dialogue is activated when layers are selected using any of the other **Data Toolbar** tools, allowing the user to manipulate their appearance. Clicking the X in the upper right-hand corner will close the dialogue; clicking **Selected Layers** at the bottom of the **Data Toolbar** will reopen it.

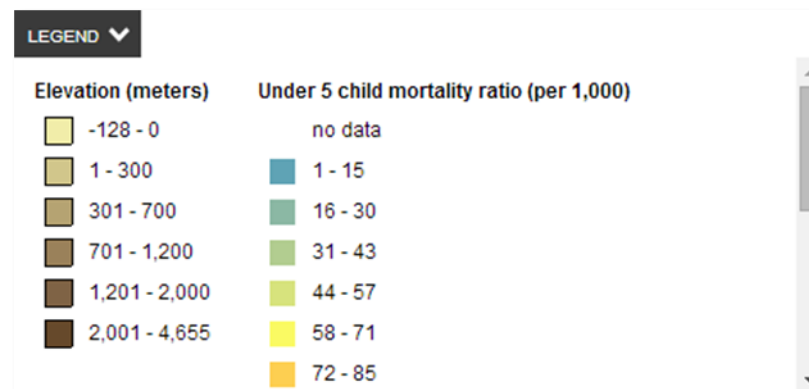
- **Order Layers** – By clicking and holding on the Order Layers icon (the up/down arrow to the left of the layer name), the user can rearrange the order in which layers are drawn in the map.
- **Layer transparency slider** – The transparency slider allows the user to adjust transparency from fully opaque – the default state – to completely transparent.
- **Information** – Activating the information icon will provide metadata for the selected dataset.
- **Remove Layer** – Selecting the red x will remove the dataset from map. It can be added back by reselecting it from its home location.
- **Layer type icon**
 - Summarizable Layer
 - Inert Layer



3.4.5 Legend

The **Legend** tab is located at the bottom of the screen, just to the right of **Data Toolbar**.

Opening the **Legend** displays relevant information about the selected layers, allowing the user to accurately interpret the map. Note that **Data Toolbar** must be minimized to its default location to be able to access or clearly view the **Legend**.



3.5 Map Tools

These tools are located in the lower right corner of the browser window and help the user navigate the map and add place-based contextualization to the display data.



3.5.1 Lat/Lon Display – Shows position of cursor (1)

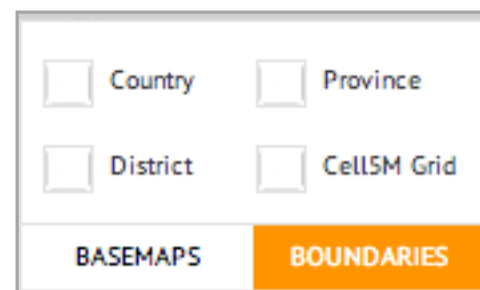
3.5.2 Reset Map –Selecting **Reset Map** (2) zooms the map to its initial extent, removes any layers or boundaries that have been added, and changes the basemap back to its default gray state. This behavior can also be affected by clicking on the **AfricaRISING** icon at the left end of the **Header Toolbar**.

3.5.3 Reference Layers – The globe menu (3) provides access to two types of map display tools – Basemaps and Boundaries.

- **Basemaps** – Four different basemaps are provide in the Africa Rising PMT: Gray, which is the default; National Geographic, which provides colored topographic relief, roads, and place-names; Satellite, which provides a bird’s eye view of the physical environment; and, Topographical, which is similar to the National Geographic in content, but not as colorful. Only one basemap may be displayed at a time.



- **Boundaries** – To provide geographic context, Africa Rising PMMT includes 3 levels of administrative boundaries (Country, Region, District) and HarvestChoice’s meso-scale Cell5m, a 5 arc-minute spatial grid. The user may activate and display as many boundary datasets as they wish.



3.5.4 Zoom In / Zoom Out – The plus and minus icons (4) in the lower left hand corner of the browser window zoom in and out on the center of the map. Zooming in to a specific location can also be accomplished by doubling clicking on the map. Shift + Click + Drag will activate a variable area zoom window.

IV. Using the Data Entry Application

4. Data Entry Application Features

The data entry and reporting module support the collection of project indicators at the site level. For each site, any number of indicator values can be captured including both pre-defined FTF indicators as well as user-defined or custom indicators that are specific to the activities occurring at a site.

There are two user types for the PMMT Data Entry Module: Editors and Publishers. Editors can view and update the indicator values for existing reports. Publishers can create new reports, update indicator values for existing reports, and create new editor accounts.

4.1 Viewing and Editing an Existing Report

This section describes the workflow users can follow to review and update existing indicator values. Users may access the data reports section by first selecting a site using either the filters or clicking on the map and then selecting “More Details”.

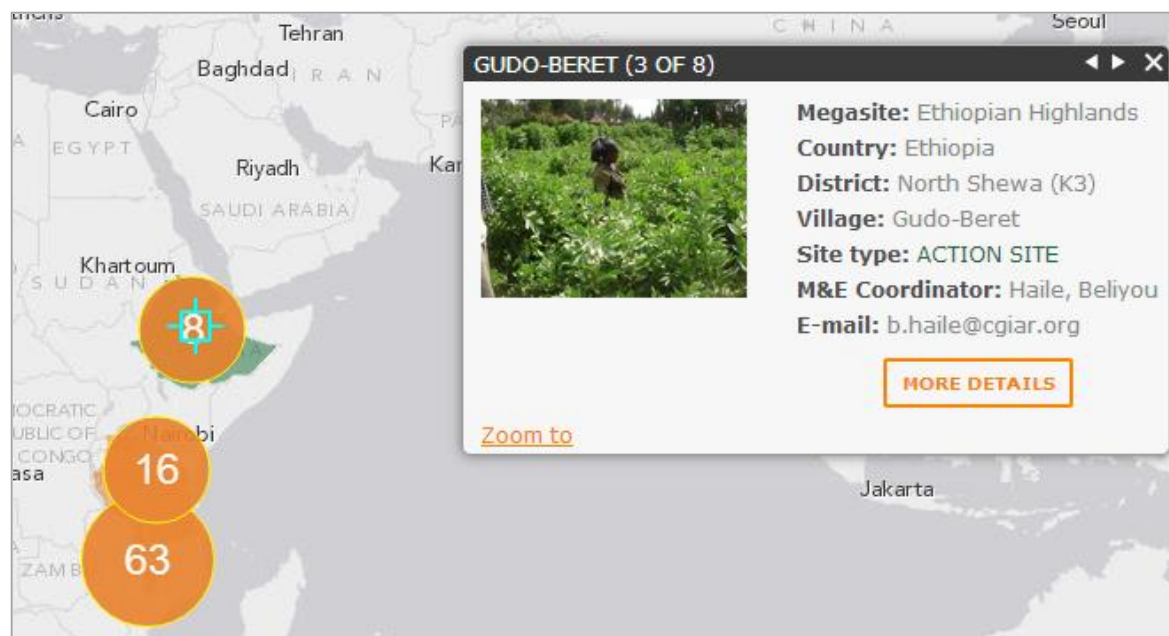


Figure 10. Data Reports Summary View

This will reveal the Research Activities panel with a link to Data Reports. Clicking the Data Reports button will bring up the login screen.

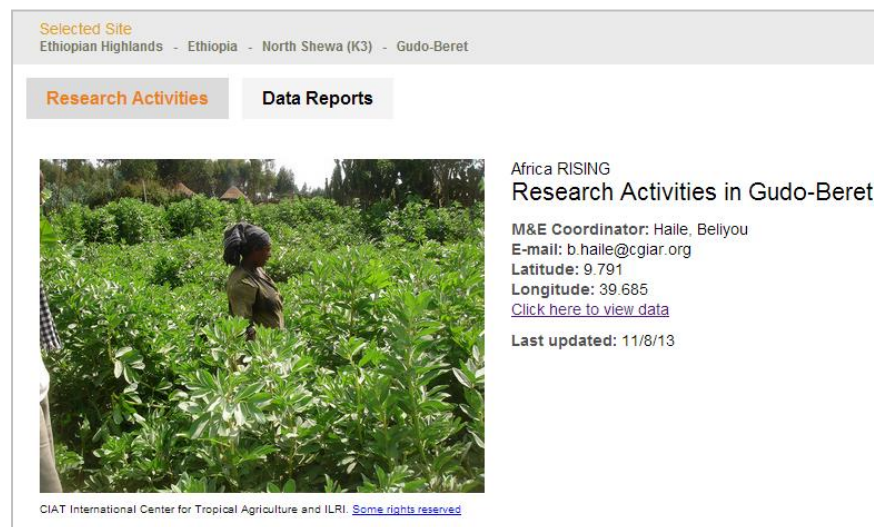


Figure 11. Selected Site Information

Once the user has provided valid credentials, they will be presented with the list of data reports.

The screenshot shows the 'Data Reports' tab selected. The page title is 'Africa RISING Data Report'. Below the title is a paragraph: 'Upon authentication, a data-entry application will be accessible to [Publishers](#), [Editors](#), and [Viewers](#). The data entry and reporting module supports the collection of project indicators at the site level. For each site, any number of indicator values can be entered, including both pre-defined Feed the Future indicators as well as user-defined (custom) indicators specific to the activities occurring at a site.' Below this text are two input fields: 'User Name:' and 'Password:'. At the bottom is an orange 'Log-in' button.

Figure 12. Login

4.1.1 Viewing existing reports

Users should scan the list to find the data report they are interested in viewing.

Research Activities **Data Reports** Welcome, testeditor! [Log-out](#)

Choose a Data Report

1. Download CSV **2. Export Image**

Choose an existing Data Report from the list below. You can revise, update or delete existing entries. To create an Data Report for a new work package, activity, geographic area, or partner, choose "Create a New Data Report" above.

3. Open Report Link

Report:	Last edited date:	Last edited by:		
Activity 3.2.3. Agricultural water management for in...	2014-06-11T0...	administrator	Download CSV File	Export Image
Report 1	2014-06-11T0...	administrator	Download CSV File	Export Image
WP3: Livestock intensification	2014-06-11T0...	testeditor	Download CSV File	Export Image
Activity 3.3.2. Testing efficiency of scaling-out and d...	2014-06-11T0...	administrator	Download CSV File	Export Image

Figure 13. Choose Data Report

Clicking on the title will open a data report. The data report contains the report details in the header followed by a dropdown list of indicators contained in the report.

Research Activities

Data Reports

Welcome, v! [Log-out](#)

Activity 3.3.2. Testing efficiency of scaling-out and delivery approaches in Mali

< Back to Data Report List

Contact name: N/A

Contact email: N/A

Last revised: 2014-06-11T00:00:00

Last revised by: administrator

Sites:
Bobola-Zangasso, Dialakoro, Dieba, Dossola, Flola, Konina, Konseguela, M'pessoba, Madina-Kouroulamini, Nampossela, N'golonianasso, N'Togonasso, Sakoro, Sibirila, Sirakele, Siratogo, Tiere, Yeni, Zansoni

Technologies:
N/A

Partners:
ICRISAT, AMEDD, MOBIOM

Indicator

4.5.1(24)

Numbers of Policies/Regulations/Administrative Procedures in each of the following stages of development as a result of USG assistance in each case

Figure 14. Data Report

Users can select from one of the indicators to view the measures and values stored for each indicator. Data are organized by row for indicators with a set of columns for each semester edition. Users may need to scroll up and down and side to side to see the full contents of the report.

4.5.2(28) ▼

Number of private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) that applied new technologies or management practices as a result of USG assistance

	2012					2013				2014				2015
	1st Semester			2nd Semester		1st Semester		2nd Semester		1st Semester		2nd Semester		1st Semester
Type of Organization														
Measure	Baseline	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Disaggregates Not Available	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private enterprises (for profit)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Producers organizations	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water users associations	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Women's groups	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trade and business associations	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Community-based organizations (CBOs)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New/Continuing														
Measure	Baseline	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Disaggregates Not Available	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Continuing	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Figure 15. Indicators

Clicking on the “Back to Reports” link in the upper right corner of the page will direct the user back to the existing reports list.

From the Data Reports List, the user can download the data in .csv file format or export an image as a report layout.

4.1.2 Entering new values or updating existing values

Users with editor or publisher rights can enter new values or update existing ones. If the user is at the Data Reports section of the application, they will first select a report, and then select an indicator. Once the desired indicator is selected, the user clicks in the appropriate row and column containing the data to change or enter anew. This is done in a similar manner to entering data into a spreadsheet.

Indicator

1
Indicator #1

	2012					2013					2014					
	1st Semester		2nd Semester			1st Semester		2nd Semester			1st Semester		2nd Semester			1st Semester
category 1																
Measure	Baseline	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	
Measure 1	5	1	2	3	-	-	-	-	-	-	-	-	-	-	-	
Measure 2	-	-	2	3	-	-	-	-	-	-	-	-	-	-	-	
Measure 3	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	

Save

Figure 16. Editing Data

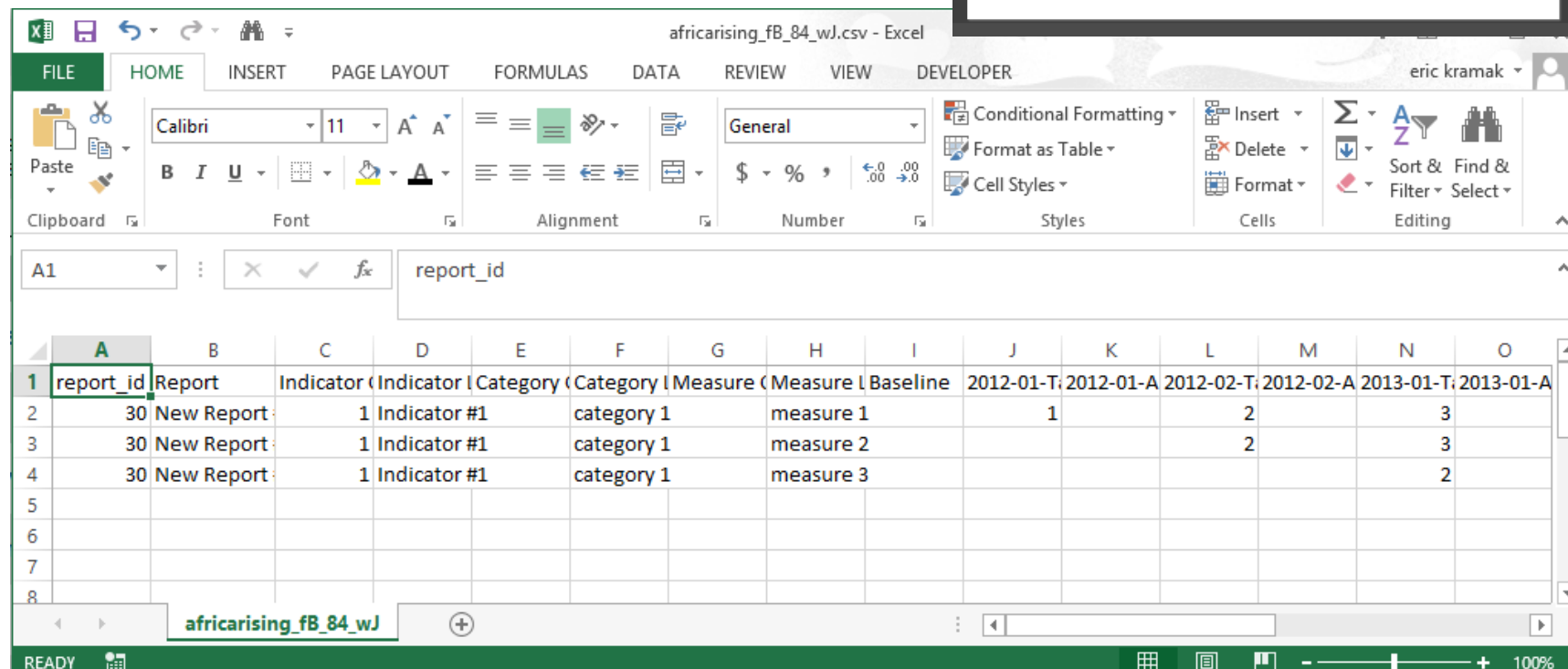
Entering new values is as simple as clicking into a cell in the table and typing in the correct value for the indicator. Once the value has been entered, the user must click the orange Save button located in the lower right of the page. Note that the user may have to scroll horizontally if the edition or year is not appearing on their screen.

4.2 Downloading Reports and Data

Authenticated users can get reports and data downloads from the PMMT. This is accessed from the Data Reports page.

4.2.1 Downloading a CSV dataset

Users first find the data report they would like to download. Clicking the corresponding Download CSV File button will begin the download of a comma separated values (CSV) file with all editions and all indicators. The file will be written locally to the user's downloads folder.



The screenshot shows a Microsoft Excel window titled 'africarising_fb_84_wj.csv - Excel'. The 'HOME' tab is active in the ribbon. A dialog box titled 'EXPORT CSV RESULT' is overlaid on the right side of the window, featuring a yellow button labeled 'DONWLOAD C S V NOW'. The Excel spreadsheet displays a table with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	report_id	Report	Indicator	Indicator	Category	Category	Measure	Measure	Baseline	2012-01-T	2012-01-A	2012-02-T	2012-02-A	2013-01-T	2013-01-A
2	30	New Report	1	Indicator #1	category 1		measure 1			1		2		3	
3	30	New Report	1	Indicator #1	category 1		measure 2					2		3	
4	30	New Report	1	Indicator #1	category 1		measure 3							2	
5															
6															
7															
8															

The status bar at the bottom indicates 'READY' and 'africarising_fb_84_wj'.

Figure 17. Export CSV

4.2.2 Downloading a report

Users first find the data report they would like to download. Then by clicking the corresponding Export Image button, an image of the report layout with all editions and all indicators will be generated. When the report is finished generating, a notification window will open with a button the image file. Using the *file > save* option from the web browser, the user can save the image locally.

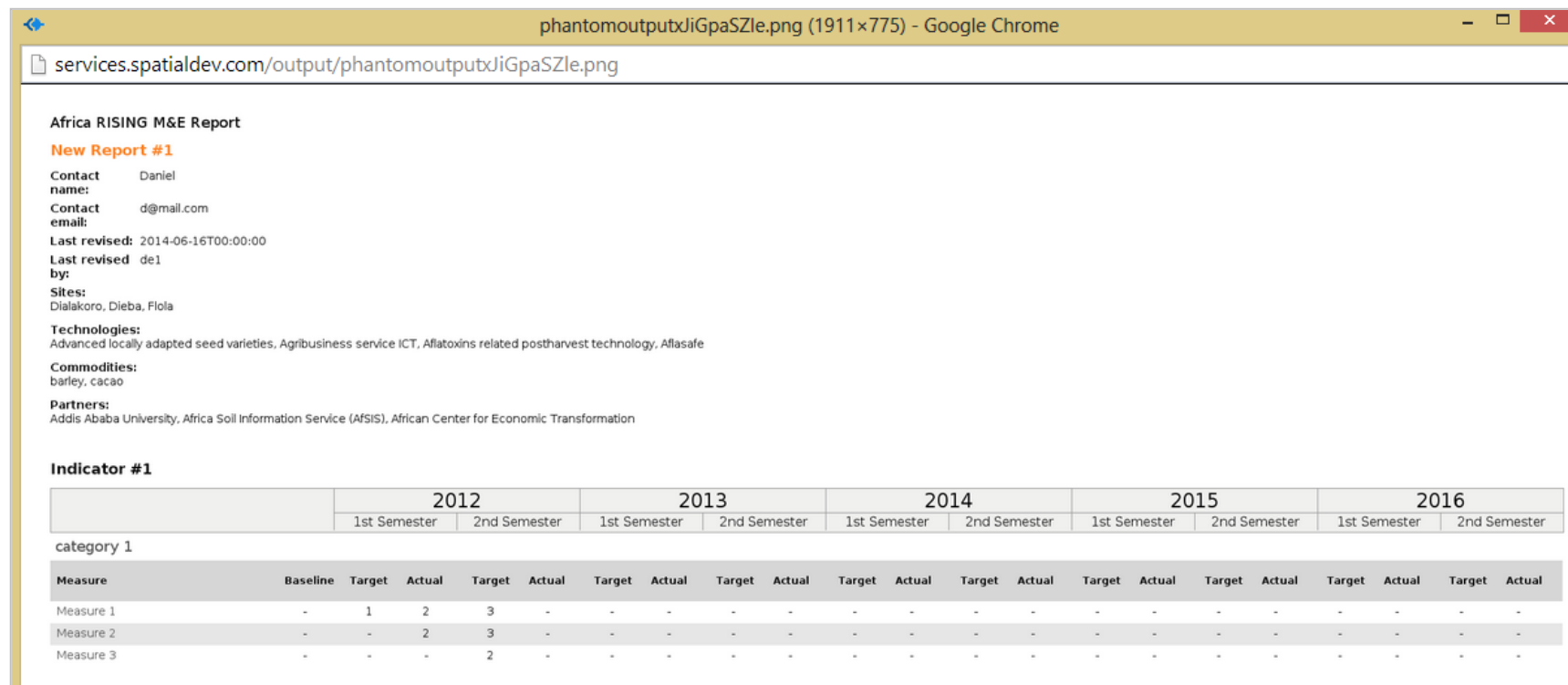


Figure 18. Export Image

4.3 Creating a new report

Users with Publisher rights may create New Data Reports. These reports may either follow the predefined FTF set of indicators or contain custom indicators and measures defined by the user. Contained in each data report is the following content:

- Report Overview* – Basic information about the data report
- Partners* – Lead and participating organizations involved in the activity being reported on
- Technologies* – Technologies applied in the activities being reported on
- Commodities* (optional) – Commodity crops targeted for improvement by the activities
- Geography* – Action sites involved in the activities
- Indicators* – The indicators comprising the report
- Measures* – The measurements relating to the report indicators.

4.3.1 Report creation workflow

Users with Publisher rights will see two additional buttons in the Data Reports Panel: Create a New Data Report and Create a New User Account. Creating a New Data Report is a stepwise workflow that guides the user through the process of defining a report template. Creating a New User Account is a quick form for adding new Editor users to the application. The PMT Administrator must create users with Publisher rights.

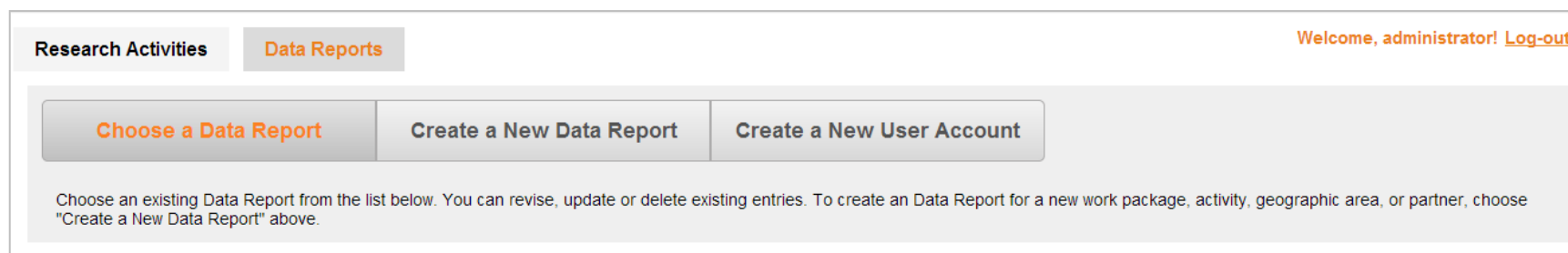


Figure 19. Publisher rights

The New Data Report workflow is as follows:

Click on Create a new Data Report

1) Overview

- a) Enter a title. Make sure the title is unique and contains enough detail so that it is clear to the users what the report covers.
- b) Enter a primary contact name.
- c) Enter a primary contact e-mail address.

Research Activities Data Reports Welcome, administrator! [Log-out](#)

Choose a Data Report Create a New Data Report Create a New User Account

Please fill out the fields below. Choose a unique descriptive title for this new Data Report (for example, use the name of the work package, research activity, specific target area, or partner).

[1\) Overview](#) [2\) Partners](#) [3\) Technologies](#) [4\) Commodities \(optional\)](#) [5\) Geography](#) [6\) Indicators](#) [7\) Summary](#)

1) Enter a unique descriptive title for this Data Report:

2) Enter a primary contact name:

3) Enter a primary contact e-mail:

Figure 20. Create New Data Report

When all the data is entered, Click **Next** at the bottom of the screen.

2) Partners

- Select a lead center from the dropdown list. Only one may be selected.
- Choose other partners (optional) from the list. You may also begin typing into the box until the correct partner organization appears.
- To remove a partner, click either the check box in the selection list or the red x in the selected partners list.

The screenshot displays the 'Partners' section of the AR-PMMT interface. At the top, there is a navigation bar with seven tabs: '1) Overview', '2) Partners' (highlighted in orange), '3) Technologies', '4) Commodities (optional)', '5) Geography', '6) Indicators', and '7) Summary'. Below the navigation bar, the interface is divided into two main sections:

- 1) Select a Lead Center:** This section features a dropdown menu with a list of potential lead centers. The visible options are: 'Access for Development, India', 'Acharya N.G Ranga Agricultural University (ANGRAU), Hyderabad', 'ACIAR', 'Addis Ababa University', 'Africa Soil Information Service (AfSIS)', and 'African Center for Economic Transformation'.
- 2) Select Other Research Partners (Optional):** This section includes a search box labeled 'Enter keywords to filter your results below'. Below the search box is a list of research partners, each preceded by an unchecked checkbox. The visible partners are: 'Access for Development, India', 'Acharya N.G Ranga Agricultural University (ANGRAU),...', 'ACIAR', 'Addis Ababa University', 'Africa Soil Information Service (AfSIS)', 'African Center for Economic Transformation', 'African Development Bank', 'African Economic Research Consortium', 'African Forum for Agricultural Advisory Services (AFAAS)', and 'African NARS & Universities'.

Figure 21. Add Partner(s)

Click **Next** at the bottom of the screen.

3) Select Technologies

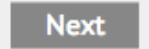
- a) Select one or many technologies by checking the boxes in the list. You may also type keywords into the box until the desired technology appears.
- b) To remove a technology, either click the checkbox in the selection list or the red X icon in the selected technologies list.

1) Overview 2) Partners **3) Technologies** 4) Commodities (optional) 5) Geography 6) Indicators 7) Summary

Selected Technologies

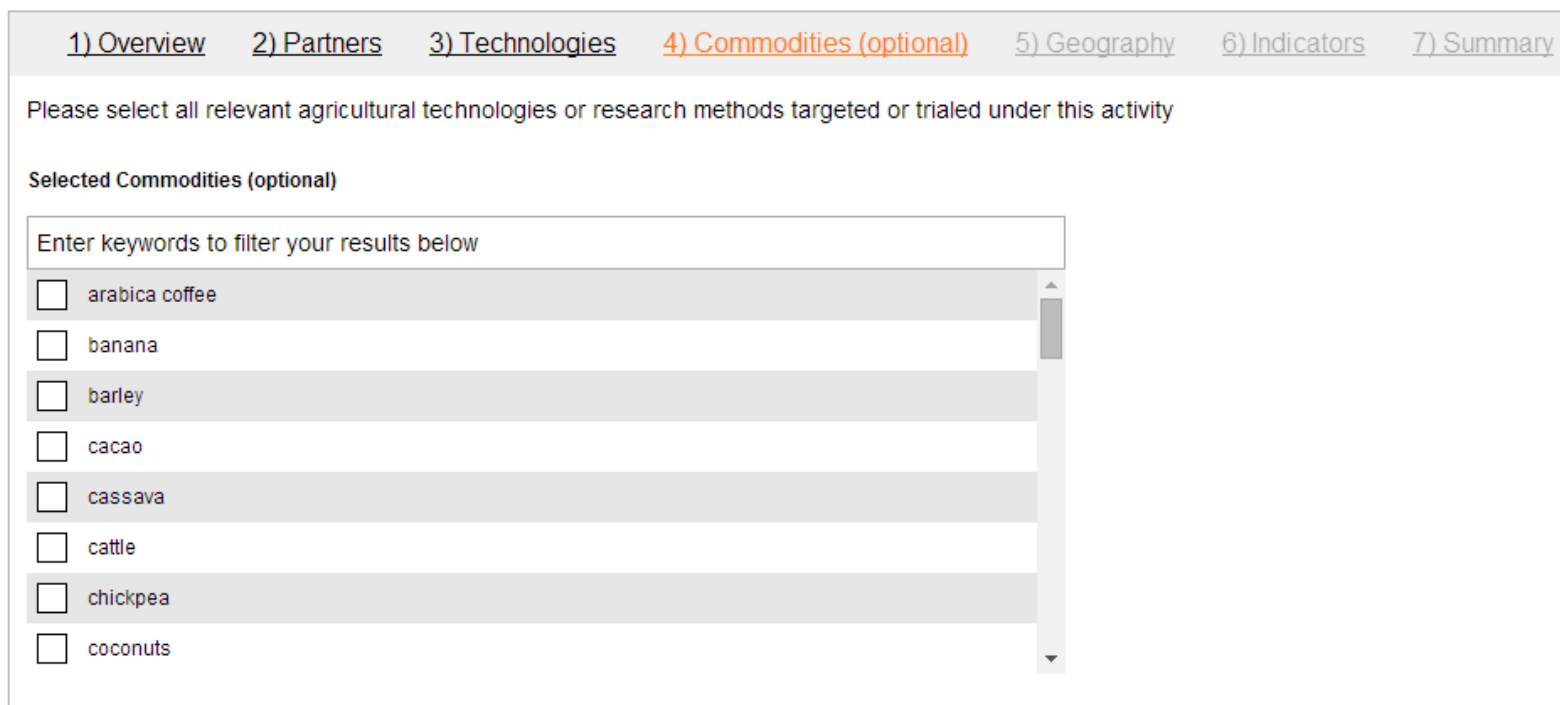
- ☐ Advanced locally adapted seed varieties
- ☐ Aflasafe
- ☐ Aflatoxins related postharvest technology
- ☐ Agribusiness service ICT
- ☐ Agro-Pastoral Field Schools
- ☐ Alternative basic education for nomadic communities
- ☐ Animal health and disease control
- ☐ Artificial insemination
- ☐ Automated disease reporting
- ☐ Biofortification technology

Figure 22. Select Technology

Click  at the bottom of the screen.

4) Commodities (optional)

- a) Select one or many Commodities by checking the boxes in the list. You may also type keywords into the box until the desired commodity appears.
- b) To remove a commodity, either click the check box in the selection list or the red X icon in the selected technologies list. Note that including commodities in the report is optional.



[1\) Overview](#) [2\) Partners](#) [3\) Technologies](#) [4\) Commodities \(optional\)](#) [5\) Geography](#) [6\) Indicators](#) [7\) Summary](#)

Please select all relevant agricultural technologies or research methods targeted or trialed under this activity

Selected Commodities (optional)

Enter keywords to filter your results below

- ☐ arabica coffee
- ☐ banana
- ☐ barley
- ☐ cacao
- ☐ cassava
- ☐ cattle
- ☐ chickpea
- ☐ coconuts

Figure 23. Add Commodities

Click **Next** at the bottom of the screen.

5) Select Sites

- Select a country from the dropdown list.
- Choose from the list of sites within the selected country.
- To remove a site, either click the checkbox in the selection list or the red X icon in the selected sites list.

1) Overview 2) Partners 3) Technologies 4) Commodities (optional) 5) Geography 6) Indicators 7) Summary

Please select all site locations or communities targeted in this report.

Select a Country:

Ethiopia ▲

Ethiopia

Ghana

Malawi

Mali

United Republic of Tanzania

Select Target Communities in Ethiopia

Enter keywords to filter your results below

☐ Embahasti

☐ Goshe-Bado

☐ Gudo-Beret

☐ Jawe

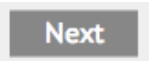
☐ Sanbitu

☐ Selka

☐ Tsebet

☐ Upper Gana

Figure 24. Define Geography

Click  at the bottom of the screen.

6) Choose between Feed the Future and Custom.

If you choose Feed the Future, click Next to advance to the next step. Your data report will be populated with the pre-defined Feed the Future indicators and measures.

If you choose Custom,

- a) You will be prompted to define the Indicator name. Use the name to list the units of the indicator (in parentheses).
- b) Enter an Indicator code. This is a free text entry that will accept whatever input you provide. Note that Indicator names and codes cannot be edited and must be deleted and re-created if created in error.
- c) Add categories to the indicators.
- d) For each category, define measures to be applied.

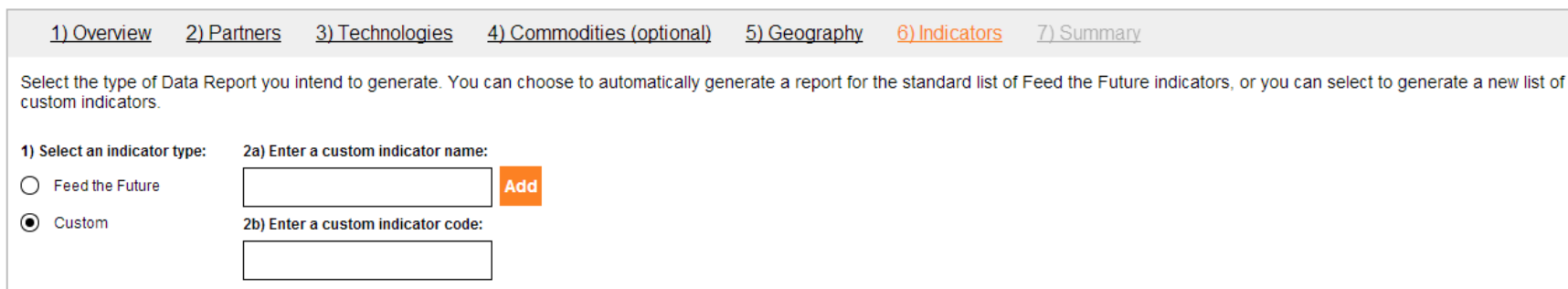

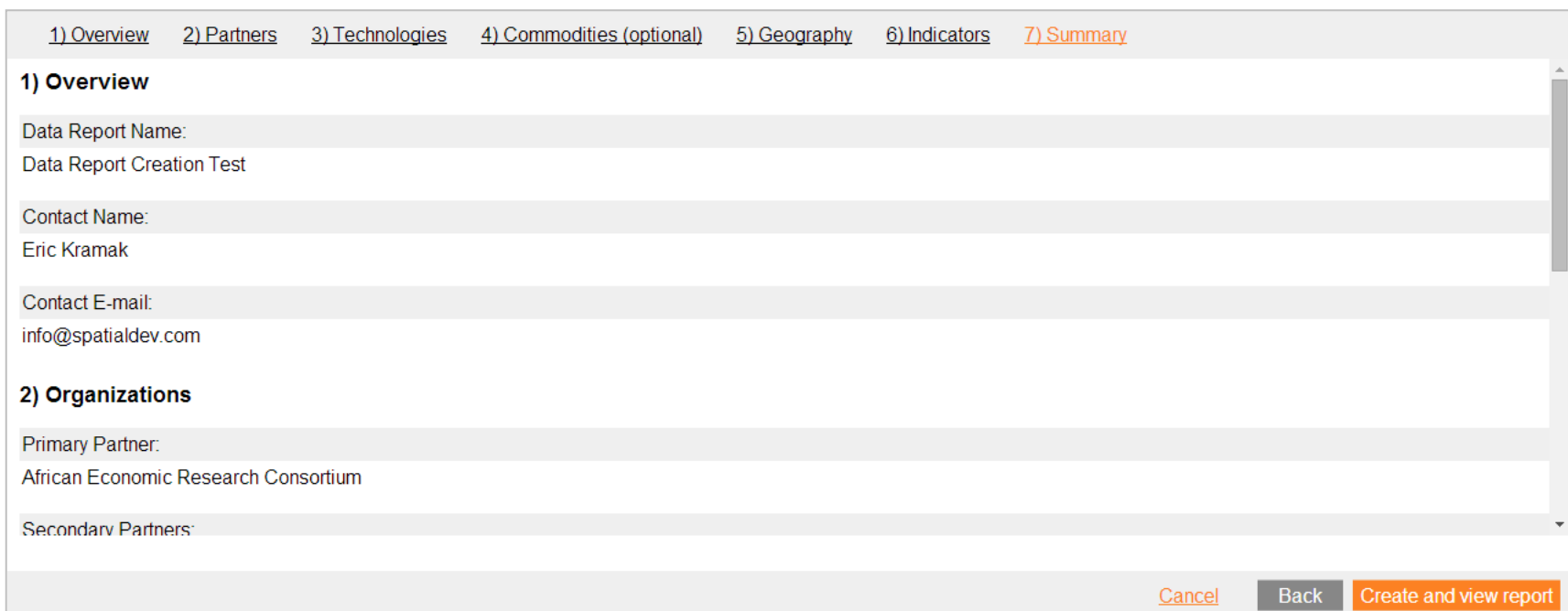


Figure 25. Add Indicators

Click  at the bottom of the screen.

7) A summary will be provided where users can review the report fields. If anything needs to be changed, users can click on the workflow breadcrumbs above the summary or the back button on the lower right of the summary. If the summary passes inspection, click Create and View Report. The report will now appear in the data reports list.



1) Overview 2) Partners 3) Technologies 4) Commodities (optional) 5) Geography 6) Indicators 7) Summary

1) Overview

Data Report Name:
Data Report Creation Test

Contact Name:
Eric Kramak

Contact E-mail:
info@spatialdev.com

2) Organizations

Primary Partner:
African Economic Research Consortium

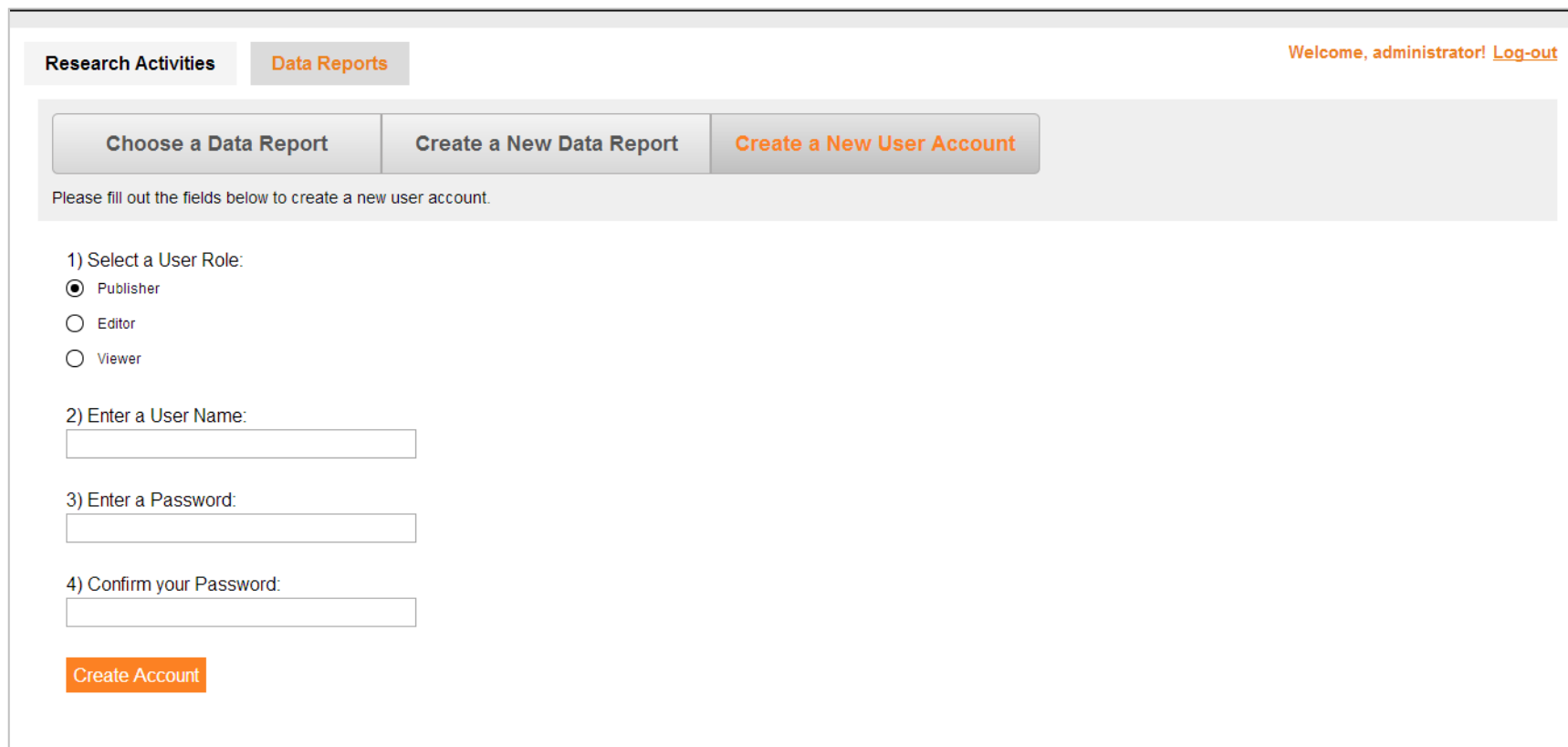
Secondary Partners:

[Cancel](#) [Back](#) [Create and view report](#)

Figure 26. Summary

4.4 Creating a new user account

Publishers can create new user accounts with Editor privileges. M&E Coordinators should maintain a separate list of accounts to track the editors they have granted access too. User reports can be generated by request.



The screenshot shows a web interface for creating a new user account. At the top, there are two tabs: 'Research Activities' and 'Data Reports', with 'Data Reports' being the active tab. In the top right corner, a welcome message reads 'Welcome, administrator!' followed by a 'Log-out' link. Below the tabs, there are three buttons: 'Choose a Data Report', 'Create a New Data Report', and 'Create a New User Account', which is highlighted in orange. A light gray box contains the instruction: 'Please fill out the fields below to create a new user account.' The form consists of four numbered steps: 1) 'Select a User Role:' with three radio button options: 'Publisher' (selected), 'Editor', and 'Viewer'; 2) 'Enter a User Name:' with a text input field; 3) 'Enter a Password:' with a text input field; and 4) 'Confirm your Password:' with a text input field. At the bottom left of the form is an orange 'Create Account' button.

Figure 27. Create New User Account